

Daguerreotypes

Europe's Earliest Photographic Records



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Front cover image: *Still-Life in the studio, Louis-Jacques-Mandé Daguerre, 1839, before the public announcement of the process.*
National Heritage Institute of the Czech Republic, Regional Heritage Office in Prague

Project summary

The Daguerreobase project is a public platform and Best Practice Network of archives, libraries, museums and private contributors from across Europe to collect and preserve information on European daguerreotypes and to spread best practice in the collection and dissemination of this information. The Daguerreobase project brought together a consortium of 18 partners coming from 13 European countries; including private and public institutions, private collectors and photograph conservators. The project is partially funded under the **Information and Communication Technologies Policy Support Programme (ICT PSP)** as part of the Competitiveness and Innovation Framework Programme by the European Commission (http://ec.europa.eu/ict_psp), started on November 1, 2012 and will be completed by April 2015. A new body will carry the work forward after April 2015.

Photography has fundamentally changed our way of looking at the world and generated the new kind of rich visual culture we embrace today. Before the introduction of photographic reproduction techniques, people were used to looking at drawings and prints that were produced through graphic reproduction methods. The daguerreotype (followed by other photographic techniques and methods) revealed a new vision of imaging, creating images 'through the nature' without the need of any artistic skill. Daguerrotypy was at the same time criticised because of the limitations that no printed reproductions could be made from it.

The daguerreotype was the first successful photographic process in the history of photography and was named after its inventor **Louis-Jacques-Mandé Daguerre**. After the announcement and introduction in 1839, the daguerreotype was widely used in Europe for the first photographic images of Europe and its citizens. The base of the daguerreotype is a highly polished metal plate, consisting of a thin layer of silver on a copper support. A daguerreotype is created through direct exposure in the camera and delivers a unique image from which no further photographic prints were made. The daguerreotype technique is explained in Chapter 2 of this booklet.

1. Introduction and summary

Many aspects of the daguerreotype still need to be discovered to understand the impact of photography on Europe's social and cultural history. In order to enable this, a critical mass of information on the surviving daguerreotypes will be collected through the registration of them in a collective database, Daguerreobase (www.daguerreobase.org). Linking of this knowledge with information available in Europeana, 'The Portal and Digital Library for European Cultural Heritage of the European Union', will help to place the remaining examples of this earliest form of photography in a more complete historical context.



Louis-Jacques-Mandé Daguerre (18 November 1787 – 10 July 1851)

2. Cataloguing and sharing information

Large and small institutions which are responsible for collections, including daguerreotypes, are usually good meeting points. Curators of photography as well as photo conservators, create an environment in which a fruitful exchange of information may take place. This can lead to a process of more accurate dating, identification of technique or the throwing of new light on the context in which a daguerreotype was created.

2.1 Documenting

Relatively little is known about the practise of the first daguerreotypists. Only in the mid 1850's were the first photography associations founded. Early writings about photography were mainly dedicated to the scientific and technical aspects of the medium, less so to the aesthetics of the presentation. Some daguerreotypes will hold information about the maker and the origin, but for many, little is known. Often historical daguerreotype housings have been altered, resulting in broken or open bindings. The different component parts can fall apart and sometimes become lost.

During the conservation process, the conservator may have access to the hidden parts of the daguerreotype object and can carefully document them, both photographically and in writing. This information could even include the name of the maker and of the person portrayed, a date and an indication of locality. The known information may also be expanded through research done by archivists, curators and historians.

Documenting the available details in one centralised registration system, will create new possibilities for accumulating knowledge and better understanding. Then, similarities between daguerreotypes from other collections, perhaps even from other parts of the world, can subsequently be retrieved with a simple or refined search operation.

2.2 Accrediting unknown plates

An example: a conservation studio is dealing with a daguerreotype of unknown origin. It has a conspicuous mat and a hallmark/plate mark of which little is known. The description of the mat shows similarities in the registration system with a series of objects from Hungary, all of which also bear the same hallmark. It is probable that the conservator and owner/custodian

now have a lot more information regarding the origin of the object, thus significantly deepening the knowledge.

2.3 Daguerreobase, a collective cataloguing tool for daguerreotypes

Daguerreobase is a digital registration system specifically for daguerreotypes whereby each object's characteristics can be accurately described. Having recorded the divergent characteristics of daguerreotypes for many years, the conservation department of the Netherlands Fotomuseum (Rotterdam) began developing the Daguerreobase in 2004. A first online application was launched in 2009. This first initiative covered only The Netherlands. Daguerreobase can however only function as an efficient cultural and informative tool when more daguerreotypes from a large number of European collections will be brought together. In 2012, the FotoMuseum Provincie Antwerp (FoMu) and the Netherlands Fotomuseum (NFM) lead a Europe wide consortium which was successful in applying for European funding to renew and to extend the existing Daguerreobase.

2.4 Project Goals & Outcomes

The Daguerreobase approach combines best practice consensus building and awareness raising activities with the full-scale implementation of an infrastructure for metadata dissemination and digital content delivery.

Partners in the project (beneficiaries) are working on several specific areas such as a community standards description, terminologies and thesauri or entries lists, long term sustainability and intellectual property right (IPR) issues. Partners will disseminate skills and existing and newly gathered information through Daguerreobase and their own networks. Another very important aspect of the project is the involvement of not only national museums, archives and libraries, but also of private owners, collectors, research centres and experts. The large-scale implementation for validation of the best practice results will enrich Europeana through the addition of high quality daguerreotype images and metadata. Daguerreobase will identify and develop synergies with Europeana, to help maximise the impact of the ICT-PSP programme.

2.4.1 Content

One goal of the Daguerreobase project is to define a descriptive standard for daguerreotypes and to register and provide access to the data of at least 25,000, mainly European style, daguerreotypes and 6,500 pages of associated historical literature. This will be on a European level, of items kept in European institutional and private collections, and will make a selected number of descriptive fields available through Europeana, the portal for European Cultural Heritage. Every addition to the existing information will be valuable. The truism that, “the whole is greater than the sum of the parts” is particularly apt in regard to Daguerreobase.

2.4.2 Improved functionality

The existing website www.daguerreobase.org functions as a metadata aggregator and multilingual platform interacting with the Europeana portal.

Daguerreobase.org will make available daguerreotype images and descriptions, historical literature and ephemera, as well as information of activities and events in relation to the daguerreotype medium. Daguerreobase.org will improve the preservation and the management of this unique part of Europe’s first photographic heritage and will include guidelines and tools for the description and imaging of daguerreotypes.

2.4.3 New Multilingual community

Awareness, dissemination and networking activities will result in basic multilingual information on how to participate in the Daguerreobase European network and how to recognize the daguerreotype medium. Daguerreobase will engage the photography and heritage community through awareness raising activities by its partners, for the general public by:

- sharing best practice;
- offering access to the Best Practice Network outcomes;
- and attracting new content providers.

These aspects will be continued after the end of the project by the newly founded European Daguerreotype Association (EDA).

2.4.4 How to describe a daguerreotype?

Daguerreobase creates community standards for the description and digitisation of daguerreotype objects. To facilitate the uniform description of the many aspects of the daguerreo-

type, the consortium will provide the 'Community standard for the description of daguerreotype objects'. This will be extended with a multilingual set of thesauri or entries lists for daguerreotypes, and an environment to create and evolve that terminology in permanent compliancy with Europeana. The entries lists, online manuals, instructions and guidelines (for use of the editing tools) will be available in at least nine different languages. During and after the project runtime, Daguerreobase will continue making efforts to improve the access by increasing the available number of languages.

2.4.5 Daguerreotype Masterpieces

In 2014, the photographic community will celebrate the 175th birthday of the announcement of the first successful photographic technique, the daguerreotype. Daguerreobase will have access to a significant number of high quality daguerreotypes. Daguerreobase and Europeana will contribute to this event by showing a selection of these daguerreotypes in a 'Virtual Exhibition of European Daguerreotype Masterpieces' on their web-sites.

2.5 Project Impact

Daguerreobase will build a community documenting, sharing and preserving photographic history and heritage of mainly the 19th century, without limiting 20th and 21st century applications and new practises. By aggregating digital content, descriptions of daguerreotypes and historical literature on such a large scale and from unique and authoritative collections, the Best Practice Network brings together a significant and important pillar of the earliest European photographic history in a thematic database. Through the benefit of Europeana and the extended exchange of content between Europeana, institutions, organisations, artists, individual owners and collectors, Daguerreobase can enhance the quality of the historical experience and stimulate the discoveries in primary source materials that were never previously available. Access by the general public on such a large scale of this rare and early photographic part of Europe's rich and diverse cultural heritage, will be an exceptional experience. Descriptions and images of daguerreotypes and the historical literature from the participating institutions and private collectors can be consulted at www.europeana.eu and www.daguerreobase.org.

Generally speaking, daguerreotypes in museum collections are safely stored away. Cross connections and relationships between these collections therefore seldom come to light, though they are often precisely the missing piece of the puzzle for researchers. Daguerreobase is intended to stimulate and simplify research in the field of the daguerreotype and similarly to offer a broad, free access to this unique facet of our global cultural heritage!

2.6 Project Partnership

The consortium mainly consists of national museums, archives and libraries who put a strong emphasis on public interaction with their cultural heritage through exhibitions, websites, databases, publications, guided tours, etc. The partnership between all these key stakeholders will increase the joint knowledge base and exchange of expertise and information between institutions and the general public. The partners in this EU supported Daguerreobase project are:

Coordinator:

BELGIUM - FotoMuseum Provincie Antwerpen (FoMu)

WEBSITE: www.fomu.be

FotoMuseum Provincie Antwerpen (FoMu) is Belgium's leading museum for historical and contemporary photography. It was founded in 1965 as part of the Provincial Museum of Decorative Arts in Antwerp. In 1986 the Photography Department gained autonomy and moved to the present day building. In 50 years the museum has assembled a collection of international importance. The collection has been greatly broadened and diversified by acquisitions and donations such as the Michel Auer collection, the archive and library of the Association Belge de Photographie, Agfa Gevaert, Agfa Historama (Cologne) and the Fritz L. Grüber collection. FoMu manages a significant photographic heritage collection consisting of approximately 32 000 historical and contemporary publications, 750 000 photographs (positives and negatives) and 23 000 pieces of photographic equipment. The camera collection is almost unique in terms of its size and diversity. The photography collection, ranging from the 19th till 21st century examples, includes 183 daguerreotypes.

Partners:

AUSTRIA - **Institut für Papierrestaurierung Schloß Schönbrunn (IPR)**

WEBSITE: www.papier-restaurierung.com

In 1995, six highly specialised paper conservators have joined their talents and founded the institute for paper conservation Schloß Schönbrunn (IPR). They are convinced that working together in a team enables them to accomplish their assignments more efficiently. The institute for paper conservation has been established as civil partnership pursuant to the Austrian Civil Code. Being the largest private conservation workshop in Austria, the institute is able to accept assignments from all fields of paper conservation, for example the conservation of historic and modern graphic works on paper, books, photographs or historic wallpaper.

BELGIUM – **eDAVID (eDAVID)**

WEBSITE: www.eDAVID.be

In Flanders, research on the long-term preservation of authentic electronic records with evidential value started with the DAVID-project in 2000. The project partners, the City Archives of Antwerp and the KU Leuven Interdisciplinary Centre for Law and ICT (ICRI) continued their research activities in the Expertise Centre DAVID (eDAVID vzw). Within eDAVID the long-term preservation of digitised and digital records was further elaborated and other related research topics came into scope, such as records management and digital repositories.

CZECH REPUBLIC - **Národní technické museum (NTM)**

WEBSITE: www.ntm.cz

The National Technical Museum has a status of central museum of the Czech Republic and is a scientific institution with documentation, presentation, methodological, and information functions. The basis of its activities are the collections that have been created as the nation's memory. The collection contains about 56 000 filed items (representing several times as many the number of individual objects). The collections include such unique objects as astronomical instruments from the 16th century used by Tycho Brahe, the first Czechoslovak car and some of the oldest daguerreotypes. The collections, archival items and book funds are not only presented to the public in permanent and temporary exhibitions but also through educational and professional programs.

DENMARK – [The Royal Library, The National Library and Copenhagen University Library \(KBDK\)](#)
WEBSITE: www.kb.dk

The Royal Library organises exhibitions, concerts, literature events and other cultural activities additional to the library service. The Royal Library has the National Photographic Museum as a part of its organisation and is the keeper of the national collection of photographs. The library holds approximately 10 million photographs/negatives, among these the largest Northern European collection of daguerreotypes. The library conservation studio has expertise within all the types of library and archival materials and is working for the preservation of the library's collection and for other institutions.

FINLAND - [The Finnish Museum of Photography \(FMP\)](#)

WEBSITE: www.valokuvataiteenmuseo.fi

The Finnish Museum of Photography is the national special museum for photography and is promoting and fostering the Finnish photographic art and culture. The museum, founded on the initiative of a number of photography organisations, began its work in 1969. The museum is maintained by the Foundation for the Finnish Museum of Photography. The museum puts on exhibitions of Finnish and foreign contemporary photography, and presents the diverse history of photography. Museum education work underpins the exhibitions, producing photography and media education projects for the various audiences. The museum collection puts emphasis on Finnish contemporary photographic art. In a national context the FMP has considerable specialist expertise in the preservation and conservation of photographs.

FRANCE – [Atelier de Restauration et de Conservation des Photographies de la Ville de Paris \(ARCP\)](#)

WEBSITE: arcp.paris.fr

Installed in 1983 within the Department of Cultural Affairs of the City of Paris, the 'Atelier de Restauration et de Conservation des Photographies de la Ville de Paris' implements preservation and valorisation policy for the City's photographic heritage – which represents about 8 million photographs, conserved in its museums, libraries and archives - and can provide its services to other French or foreign cultural heritage institutions.

The ARCP, housed within the Maison Européenne de la Photographie and managed by Anne Cartier- Bresson, is composed of five sections - registration, preventive conservation, remedial

conservation - restoration, reproduction and documentation - providing several services such as condition surveys and collections care advice, specific conservation treatment of historic or fine art photographs, written and photographic documentation of the treatments, preparation and protection procedures before digitalisation, reproduction of original negatives and prints, assistance and environmental control during exhibitions, exhibition curator. ARCP takes also part in advanced research and dissemination of knowledge in the field of photographic preservation and conservation, in France or abroad, offering specific training, welcoming interns, and opening its documentation centre to researchers.

GERMANY – **Museum Ludwig / Stadt Köln (MLK)**

WEBSITE: www.museum-ludwig.de

The Museum Ludwig is one of Germany's most important museums for modern and contemporary art. It was built in 1986 to house the donation of modern art by Peter and Irene Ludwig, including the most important Pop Art collection outside the USA, as well as the collection of Expressionists and other important representatives of Classic Modernism given to the city of Cologne by Dr. Josef Haubrich in 1946. Today it holds the third largest Picasso collection worldwide and covers all major approaches in 20th and 21st century art.

The acquisition of the L. Fritz Gruber Collection in 1977 laid the foundation for the photographic collection. The scope of the photographic collection ranges from the beginnings of photography to the end of the 20th century - including about 550 daguerreotypes mainly from the Stenger and Lebeck collections, but also material on the cultural history of photography.

GERMANY - **Technische Sammlungen Dresden, Dresden (TSD)**

WEBSITE: www.tsd.de

The Technische Sammlungen Dresden were founded in 1966 as Polytechnisches Museum to promote the technical developments education in general with emphasis on the region. In 1993 the museum moved in the Ernemannbuilding, the former headquarter of the Heinrich Ernemann AG. This factory had been one of the world's leading manufacturers of photography and cinema technology in the early twentieth century, later followed by other camera factories. The museum of today defines itself as Museum for Media Technology and Communication. It integrates the Math Land of Adventure, the Experimentation Centre

and the Dresden Centre for Photography. The museum is already presenting many treasures from its collections on the history of photography and cinema technology, computers, calculators and typewriters as well as the audiovisual media. The photographic collection is one of the largest in the region. It also includes an important collection of daguerreotypes.

ITALY - SMP di Sandra Maria Petrillo (SMP)

WEBSITE: www.smp-photoconservation.com

Established in 2010 by Sandra Maria Petrillo, SMP is dedicated to the conservation and preservation of fine art and historic photographs. SMP provides surveys on preservation conditions of public photographic collections as well as advice and care services for private collections. The studio also offers workshops on the history of photography, identification and preservation of photographic materials.

Sandra Maria Petrillo has written a number of publications on historical photographic techniques and conservation of photographic materials. At the university of Rome „Tor Vergata“ she teaches courses in conservation of photographic materials and curates for the journal of conservation *Kermes La rivista del restauro*, a column called „Materia Photographica“ which presents information on present current scientific topics in the field of photographic conservation and preservation.

LUXEMBOURG - Ministère de la culture - Centre national de l'audiovisuel (CNA)

WEBSITE: www.cna.lu / www.steichencollections.lu

The Centre national de l'audiovisuel (CNA) is Luxembourg's public institute for the conservation and the promotion of the national film, photography and sound heritage. The CNA has been created in 1989 as an archive accessible to the public, and its photography collection comprises today more than two hundred thousand documents. They range from historical and contemporary art photography to documents of historical and socio-cultural interest for Luxembourg. The two Steichen collections from the Museum of Modern Art are considered part of Luxembourg's national heritage. In 2007, the CNA moved into a new building, op der Schmelz, featuring an exhibition gallery, two cinema screens, a well-stocked library and médiathèque, film and sound studios as well as an archival vault for photography and film.

NORWAY - Nasjonalbiblioteket (NB)

WEBSITE: www.nb.no

The National Library of Norway is among the main sources of knowledge about Norway, Norwegians and Norwegian matters. It builds, preserves and makes available collections of many kinds in all media formats, including printed material, public broadcasts, music, photographs, films and digital documents. The Library is responsible for administering the National Act relating to the legal deposit of generally available documents. Besides being a research library, the National Library is also a cultural institution. Through cooperation with local libraries and institutions within education, research, archives, museums, media and the arts, the enterprise is continuously developing and offering new services aimed at the general public. On the basis of the Library's expanding digital collection, as well as an advanced retrieving and disseminating infrastructure, the services and areas of responsibility are continually developing.

NORWAY - Universitetet i Bergen (UiB)

WEBSITE: www.uib.no

The Picture Collection is part of the Department of Special Collections at the University Library of the University of Bergen. The department has collections from the library of Bergen Museum, one of Norway's oldest research institutions, dating back to 1825. The Picture collection dates back to the early 1960's and is today one of the largest and most influential picture collections in Norway, containing the full archives of Knud Knudsen, pioneer photographer from 1864 to 1900 and the company after him. Marcus Selmer was an important daguerreotypist in Bergen, and also established the first permanent photographic studio in the city. UiB is representing the University Library, Bergen; City Museum Bergen and the University Museum Bergen.

SPAIN - Universitat Politècnica de Valencia (UPV)

WEBSITE: www.upv.es

Universitat Politècnica de València (UPV), Spain, founded in 1971, is a public institution devoted to education, research and development (R&D) activities. It has a total of 36,000 students, 2,850 teaching staff, and 2,600 staff members. UPV is the second public university

in the region of Valencia and one of the pioneers in innovation and technological development of the country. Lemfc is a research lab which belongs to this University. It was formed as part as the MA in Photography (www.masterfotografia.es) and it is settled inside the Instituto de Diseño y Fabricación. Lemfc is formed by a multidisciplinary team who dedicated their efforts to study the behaviour and conservation of photographic mounting materials used in contemporary photographs. Nowadays, Lemfc is carrying on two research projects: accelerating ageing tests of modern materials used for photographs and the development of the Photographic Activity Test (PAT). Besides this, Lemfc is also developing a directory for photographic collections in Spain (www.dfoto.info).

THE NETHERLANDS - [Stichting Nederlands Fotomuseum \(NFM\)](#)

WEBSITE: www.nederlandsfotomuseum.nl

The Nederlands Fotomuseum was founded in 2003 as the result of a fusion of the former Nederlands Fotoarchief (NFA), the Nederlands Foto Instituut (nfi) and the Nationaal Fotoherrestauratie Atelier (NFrA), a conservation studio for photographic materials. The Nederlands Fotomuseum preserves a significant collection of Dutch photographer's archives consisting of approximately 3,5 million photographs and negatives; and an extensive collection of photographic literature. The NFM organises national and international temporary exhibitions and has a fully equipped photograph conservation studio that serves its own museum collection, but also other institutes and private persons as well. The conservation studio is specialised in the preservation and conservation of daguerreotypes and developed the first version of the daguerreotype database in FileMakerPro, with the cooperation of the George Eastman House, Rochester, NY.

In this project, the NFM will share a coordination task by acting as a 'Technical Coordinator' in taking the responsibility to guide the realisation and development of the renewed Daguerreobase.

THE NETHERLANDS - [Picturae BV \(PIM\)](#)

WEBSITE: www.picturae.com

Picturae BV was founded in 1997 in Heiloo, the Netherlands, and currently offers a wide range of services to the heritage sector. We are able to digitise almost any heritage collection, including paper documents, photographs, negatives, large paintings, maps, and audiovisual materials. Moreover, our clients make use of Memorix Maior, our in-house developed collection management software. In addition, we create websites for the pub-

lic presentation of digital heritage and offer storage and hosting services. Picturae's main office is located in the Netherlands; we also have branches in Belgium and France. Picturae has over twenty years of experience. Over the years, we built up a diverse clientele in various countries, including Magnum Photos, World Press Photo, and many others. Picturae built the first Daguerreobase website www.daguerreobase.org for the Netherlands Fotomuseum, Rotterdam.

THE NETHERLANDS - [Ortelee Marinus Jan / Daguerreotypist \(MOCED\)](#)

WEBSITE: www.daguerreotypes.eu

Martinus Ortelee Charlotte Edam Daguerreotypists, MOCED, is a contemporary daguerreotypist; manufacturing daguerreotypes and promoting the daguerreotype process through workshops, demonstrations and portrait days and social media. Marinus J. Ortelee started his daguerreotype research 2006. His main goal at that time was to find a way to reproduce daguerreotypes just as a daguerreotype. In 2007 he succeeded to make high quality reproductions of original plates. In 2008 he was invited to attend the symposium in Washington organised by the Daguerreian Society to show his work to an international audience. In 2008 he was granted his own photographic process: the Anté-Daguerreotype. Currently MOCED started a project to reintroduce the famous daguerreotype Portrait Days which haven't been practiced since approximately 1858.

UNITED KINGDOM - [Museum Conservation Services Ltd \(MCS\)](#)

WEBSITE: www.paperconservation.co.uk

Museum Conservation Services Ltd. is a private company that was originally part of a UK government funded charity working with museums. Since privatisation in 1995 MCS has been based within the Imperial War Museum at Duxford just outside Cambridge. MCS are specialist conservators providing expert paper and photographic conservation services to public and private clients throughout the UK and abroad. MCS has conserved several notable groups of daguerreotypes including 125 belonging to the Ruskin Foundation (Ruskin Library, Lancaster University), the daguerreotypes of Girault de Prangey belonging to Qatar Museums Authority and the family daguerreotypes of Richard Beard (who purchased the British daguerreotype patent from Daguerre).

2.7 Your daguerreotypes are welcomed!

We are still looking for daguerreotypes, from institutional as well as from private collections for the Daguerreobase. If you wish to obtain more information concerning the Daguerreobase and daguerreotypes, please contact the coordinator or a national representative of the project. If your country has no representatives in this project, you can always contact us through the contact information on www.daguerreobase.org.

Information:

info@daguerreobase.org



Daguerreotype of Justina Wilhelmina Blom (1832-1916), c. 1855, Photographer Carl Rensing, CER1-NFM

3. What is a Daguerreotype?

3.1 History and context

The daguerreotype was the first successful photographic process in the history of photography. On **January 7, 1839** the daguerreotype was presented at the Académie des sciences in Paris. The process was officially released to the public, after the decision of the French government to grant Daguerre with a pension, at a special joint meeting of the Académie des Sciences and Académie des Beaux-Arts held at the Institut de France in Paris on August 19, 1839¹. The daguerreotype is named after **Louis Jacques Mandé Daguerre** (1787-1851), who invented the process together with **Nicéphore Niépce** (1765-1833).

The basis of the daguerreotype is a highly polished metal plate, consisting of a wafer-thin layer of silver on a copper support. In contrast to photographic paper, a daguerreotype is not flexible and is rather heavy.

3.1.1 Realistic and sharp

'Accurate, detailed, and sharp', this is how Louis-Jacques-Mandé Daguerre's invention was described in the press in 1839. Not just the sharpness but also the abundance of details gave spectators the impression that they were seeing something which actually existed.



Front of a naked daguerreotype plate (after 1843) Photographer unknown, Historisch Museum Rotterdam

The need to see reality and the subsequent demand for images was strongest in the countries and regions most affected by the Industrial Revolution. It was in these areas that were most advanced in terms of the industrialisation, production, and distribution of goods that the necessary materials for the production of photographic images were available. Thus it was almost unavoidable that photography should originate in Great Britain and France.

3.1.2 The first photographers

Even before Daguerre's manual was translated and the first cameras and supplies were made available in Paris, many set out to produce an image using 'home-made' cameras and chemical concoctions. The spread of this revolutionary medium was relatively rapid. By 1839 or early 1840, the process had already been introduced in many European countries. Samuel Morse, the inventor of the Morse code and the telegraph, announced the medium in the United States in 1839. Others such as the English dentist D. W. Saeger² and the Frenchman François Gouraud contributed to the spread and the quick adaptation of the daguerreotype technique in the US, where it was greeted with much enthusiasm and enjoyed a longer life (up to around the early 1860s) than in Europe.



Verso of a naked daguerreotype plate (after 1843) Photographer unknown , Historisch Museum Rotterdam

An overview of some important improvements:

Gold toning

L.A.H. Fizeau invented gold toning, a method that produced greater contrast as well as a stronger, more stable image. This technique became part of the standard process from 1841³ onwards. It involved treating the plate with a warmed solution of gold chloride after it had been fixed.

Light sensitivity and brighter optics

- In 1841, several announcements were made that considerably improved the light sensitivity of the daguerreotype plate by adding a second sensitising step using another halide gas (bromine or chlorine) to Daguerre's iodine sensitiser⁴.

- Adaptations to the studio design, such as mirrors to direct the light and windows glazed with blue glass (the light sensitive layer was mostly sensitive to Ultra Violet and blue light), improved the process further.

- In 1840, Chevallier designed a more efficient achromatic lens with short focal length.

- J. Petzval's design of a mathematically precise and large-aperture lens was another important breakthrough. The optical company Voigtländer manufactured the lens and its corresponding camera.

These developments brought the exposure time down to less than half a minute and turned the daguerreotype process into a more versatile and practical medium.

Polish

Various other improvements followed, including some concerning the preparatory treatment of the plate. From the first half of the 1840's onwards, it became possible to galvanise plates, a process through which a silver layer of high purity is applied by means of an electric current. A perfect polish of the plate was achieved by using special polishing equipment. Thus, the more visible polishing lines caused by manual polishing gave way to the less obvious lines made by the polishing equipment.

3.1.3 Improvements to the process

The long exposure time, necessitated by the poor light sensitivity of the plates and the lack of large aperture lenses, was the main stumbling block during the initial period. Exposures

could only be made outside, in daylight, or from a high-placed window. Exposure times ranged from five to thirty minutes, depending upon the weather conditions and the time of day during which the exposure was made. The vulnerability of the plates and the lack of colour were also a handicap. Daguerreotypes were also very expensive and unaffordable for the larger part of the population. This does not alter the fact that the process was considered a new source of income by numerous businessmen, who, aided by scientists and engineers, worked out various important improvements to the process and the associated equipment between 1839 and 1840.

3.1.4 The first clients

Numerous portrait studios opened their doors. Depending on the equipment used, the materials, the sizes of the plates and the available light, the exposure times ranged from 15 to 25 seconds per portrait. The portrait studio's clients, that is, those who could afford a daguerreotype, included not just old established families but also those who had more recently achieved a higher quality lifestyle thanks to economic development. They therefore often wanted to show off their newly acquired status in their portraits. In the first years, simple backgrounds were in use, but beautiful furniture and various accessories became popular elements of the décor in which they posed⁵. The sitters posed sitting on a chair fitted with a metal neck brace, which enabled them to keep still for the entire duration of the exposure. The bourgeoisie's demand for portraits led to the enormous success and rapid spread of daguerreotype photography throughout Europe and the United States⁶. The competition between photographers caused a decrease in prices and enormous quantities of daguerreotypes were produced.

3.1.5 Great Britain: a special case

In the United Kingdom, the introduction of the daguerreotype followed a quite different course. The process had been patented in the UK by Daguerre just before the French Government made the process freely available to the rest of the world. Claudet purchased a licence from patent agent Miles Berry⁷. Richard Beard then bought the patent directly from Daguerre, resulting in conflict between the two businessmen. The purchase of a licence from Beard was so prohibitive that the number of licensees remained very limited until the patent expired in 1853. The extreme patent control affected the spread of the daguerreotype in the United Kingdom, which consequently remained quite restricted.

3.1.6 Subjects

Even though the portrait remained the most popular subject, the daguerreotype was used to record many other images as well including topographic, architecture and documentary subjects, antiquities, still lifes, natural phenomena and remarkable events.

3.1.7 Competition

Despite the, later, profound impact of William Henry Fox Talbot's (almost simultaneous) invention of calotype photography and the salted paper print in the United Kingdom initially this reproducible negative-positive process had to make way for the unique, non-reproducible daguerreotype. The daguerreotype's advantage was that it met the demand for highly detailed and sharp reproductions of reality, in contrast to other paper-related processes.

However, in the course of the years from 1840 onward, most of the weak points of the salted paper print and the paper negative process were gradually resolved. Due to these improvements, photographers increasingly offered photographs on paper as well as daguerreotypes. A key aim was to develop a sharper and more transparent negative. Photographers looked for materials other than paper as a carrier for the negative image, such as glass.



Two children seating in a chair, ambrotype in a housing and frame, Photo Ls. Mauduit. Inexperienced viewers are likely to have difficulty in seeing a difference between a daguerreotype and an ambrotype. Private collection.

Early attempts were made by applying albumen mixtures on glass. Paper negatives were treated with wax to increase transparency and to minimise the visual effects of paper fibres. The print was improved through the application of a light sensitive layer onto the paper, rather than within the body of the paper, so as to produce a sharper photographic image. In this way, in 1850, **Louis-Désiré Blanquart-Evrard** made improvements to the salted paper print process and introduced the albumen print - which uses a thin layer of albumen emulsion on the print paper to produce the desired clarity.

Frederick Scott Archer developed a photographic process in 1851 based on the use of a wet-collodion emulsion on glass. The wet-collodion technique on glass found applications as unique direct positives (often called ambrotypes) that were mounted in a protective housing similar as those for daguerreotypes, and as negatives. This negative process could easily be combined with the albumen print. As a result, wet-collodion came to prevail over all the other in-camera techniques, including daguerreotypes, within a relatively short time span. The advent of the carte-de-visite portrait in 1854 gave another boost to paper-based processes and as photography continued to evolve, the daguerreotype's uniqueness proved its biggest disadvantage.



Three carte-de-visite photographs. Left: Portrait of a man, salted paper print, c. 1855-1860, photographer unknown. Middle: Panorama de Paris, albumen print, c. 1865, attr. J. Deplanque. Right: Portrait of a woman, silver gelatin print, copy of a daguerreotype, c. 1900, A. Daams. All private collection.

3.2 Characteristics of the daguerreotype

3.2.1 The naked plate

3.2.1.1 Standard sizes

The production of plates for daguerreotyping became a standardised process from very early on. Manufacturer's use of standard sizes was a practice comparable to today's use of paper formats such as A4, A3, etc. One of the most popular sizes for European daguerreotypes is 10.8 x 8.1 cm, also known as the quarter plate⁸. Some of the daguerreotype plate sizes in use in the United States can differ from the European sizes.

19th-Century Image Plate Sizes:

- Whole Plate: 16,2 x 21,6 cm (6.5 x 8.5 inches)
- Half Plate: 10,8 x 16,2 cm (4.25 x 6.5 inches)
- Third Plate: 7,2 x 16,2 cm (2.75 x 6.5 inches)
- Quarter Plate: 8,1 x 10,8 cm (3.25 x 4.25 inches)
- Sixth Plate: 7,2 x 8,1 cm (2.75 x 3.25 inches)
- Eight Plate: 5,4 x 8,1 cm (2.1 x 3.25 inches)
- Ninth Plate: 5,4 x 7,2 cm (2.1 x 2.75 inches)

3.2.1.2 Silver hallmarking/plate marking

Silver plating was a legally regulated and controlled process. Manufacturers marked their products with stamps in one or more corners. The indented marks normally consist of the manufacturer's logo and a number indicating the silver content. Although commonly referred to as hallmarks, within the UK, the term hallmark is legally restricted to marks applied to solid silver, gold, palladium and platinum items. Plate marks/hallmarks can contain useful information pertaining to the provenance of a daguerreotype.

Table 1: Most common sizes for European daguerreotype plates⁸.

Characteristics of the Daguerreotype



Silver hallmark of manufacturer Charles Christofle (France), A. Gaudin (France) and Hunziker (Germany)
Example of bent corners on a daguerreotype (after 1843, Photographer unknown, FoMu)

3.2.1.3 Mirror-polished

The photographer would usually prepare the daguerreotype plates for use himself. In order to obtain a mirror – like surface, he would polish the plate using specialised tools, an activity which left its traces. This process is visible in the extremely fine polishing lines which run parallel across the surface. During preparation a plate was never to be touched by hand; special clamps were used instead. The marks of these clamps are often visible as bent edges and corners. Some of the clamps even perforated the plate or left an indented pattern. These elements provide information concerning a daguerreotype's production.



Example of polishing lines and bent corners on a daguerreotype plate. Photographer unknown, ME18, Museum Enschede.

3.2.1.4 Trimming plates

Some cameras or plate holders were not made to fit the standard sizes of plates and required a custom size. A Viennese model by Voigtländer, for instance, used circular plates⁹. These round plates were available but some daguerreotypist were trimming rectangular plates. This explains why some plates have a skewed side or a missing hallmark.



*Voigtländer Ganzmetallkamera (replica 1956), Camera for circular daguerreotype plates, GEH.
Smetana's camera, after 1840, the Petzval type lens, image format 7,2 x 8,1 cm, NTM*

3.2.1.5 Grainless

Each daguerreotype is unique as it is created through direct exposure in the camera. This means that there is no negative from which further prints can be made. The exposed silver plate is developed with mercury fumes. The exposed areas consist of microscopic silver-mercury amalgam particles. This amalgam is milky grey/white and matt; the grey tones in this way correspond with the recorded subject. The light-sensitive silver salts on the unexposed areas remain unchanged and are removed during the fixing and washing. On these places the silver mirror surface of the plate becomes visible. When something dark is reflected in the polished silver, the amalgam seems white next to the black reflection. Compared to an enlargement of a negative, a daguerreotype looks virtually grainless. Today's viewer thus experiences it as an image with an exceptionally high resolution.



Portrait of Jozefina Nelsen in floodlight (c. 1853 - 1865). Photo André F. J. Dupont - AMVC Letterenhuis, Antwerp

3.2.1.6 Colour

Most daguerreotypes are monochrome. Occasionally some colour is seen but this is usually either a blue appearance visible in over-exposed areas (solarisation) or the result of corrosion. To produce images in colour, pigments were gently applied where desired. The applications varied from a slight accent here and there - such as a red blush on someone's cheek or tinted clothing - to more complete colouring which might include entire atmospheric backgrounds. Jewellery in particular was often touched up with gold paint or cut into the surface of the silver coating to obtain a glittering effect.



Manual application of colour on a daguerreotype (c. 1850) Photographer unknown

3.2.2 The inseparable housing

A naked or bare plate (a daguerreotype without its protective housing) seldom survives in good condition. The housing is an essential component of the daguerreotype because the plates are extremely vulnerable. A good housing is solid, well fitting and to a certain extent, airtight.

There are two main types of housing for daguerreotypes: a 'European' model and an 'Anglo-American' one. However, we can find several other types or combinations of daguerreotype housings. The European style housing was usually found on the European continent and consisted mainly of glass and a paper or cardboard mat, often referred to as 'passe-partout'. In this model the image is directly visible so that the owner could give it a fixed place in the house, framed or not according to taste.

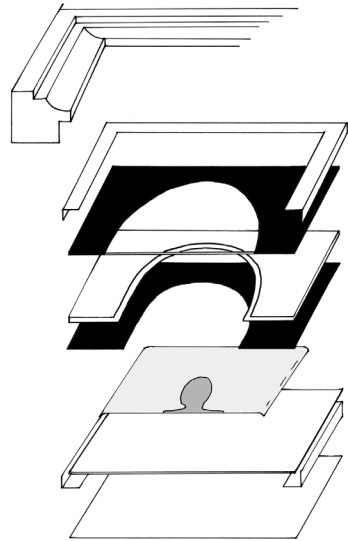
3.2.2.1 The European style housing



Two types of European style daguerreotypes DMU12 (in frame) and PKL 60192

Frame

1. Cover glass (plain or reverse painted)
2. Paper or board (combined) mat
3. Daguerreotype plate
4. Back board or paper
5. Finishing / end paper
6. Binding (paper strip)



As a minimum the housing contains at least the following components:

- a plain or painted cover glass to protect the delicate image and/or a paper/board mat
- a paper/board mat to separate the delicate image from the glass
- a way to keep the daguerreotype in its place, for instance by using strips of adhesive paper
- a seal/binding to keep all the parts together and to protect the plate from chemically reactive gasses
- a sturdy base or 'backing'.

The housing has to protect the daguerreotype but it could also have an aesthetic aspect. This was primarily expressed in colours and designs on matting and decorative papers. The protective cover glass was sometimes painted on the reverse as well. Painted glass covers often occurred in combination with elaborate mats, providing a characteristic effect. Daguerreotypists often decorated bindings and cover papers with relief prints - for example in a diamond pattern or in the shape of a flower.

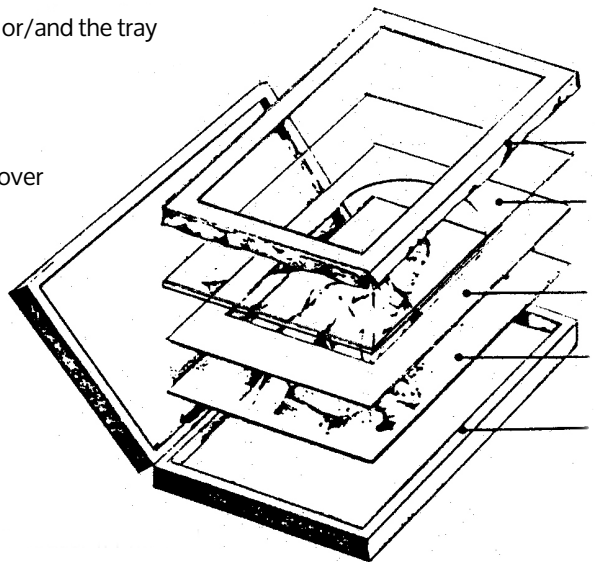
3.2.2.2 The folding or hinged case

The folding case was the standard housing in the United Kingdom and North America. It usually consisted of a wooden base covered on the outside with coloured leather or paper. An early form of plastic was also used. This thermoplastic material consisted of finely ground shellac, pigment and sawdust, and to make the cases was hot pressed in steel moulds. Cases made with this plastic are known as 'Union Cases'. Although the shellac-plastic is often confused with gutta-percha plastic (an early plastic-based hard rubber), Union Cases were never made from the latter. The case could be carried like a wallet, and had a hinge and clasps so it could be closed. The inside was usually lined with fabric and able to hold either one or two daguerreotypes, and very occasionally, four. The daguerreotype plate was mounted in a package, that is placed in the tray.

A 'package' can contain a:

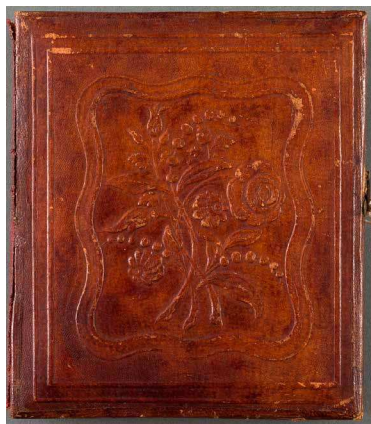
1. 'Preserver', a strip of flexible brass that clamps the parts together
2. Covering glass, mainly plain glass
3. Brass mat
4. Daguerreotype plate
5. The package is placed in the lid or/and the tray of the hinged case

Not showed, a paper binding that was pasted on the border of the cover glass and the back of the daguerreotype plate, actually keeping these parts together.



Construction of a typical Anglo-American daguerreotype, a 'package' placed in the tray of a case. Illustration T. Pritchard in Photographic Materials Conservation Catalog Group, „Cased Photographs“, Washington: (AIC), 1998

The coverings of Anglo-American cases are often decorated with embossed or indented patterns or designs. Union Case exteriors usually bear a patterned design, sometimes combined with a figurative scene. Within cases, decoration is often found inside the cover on the preserver and the mat.



Example of a thermoplastic case containing two packages (c. 1855). Photographer unknown, FoMu

Examples of a leather covered case on a series of Union Cases (Cowan Auctions). Photographer unknown (c. 1840–1865), FoMu

3.2.2.3 Frames

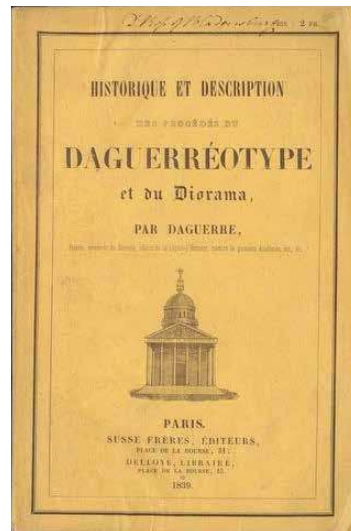
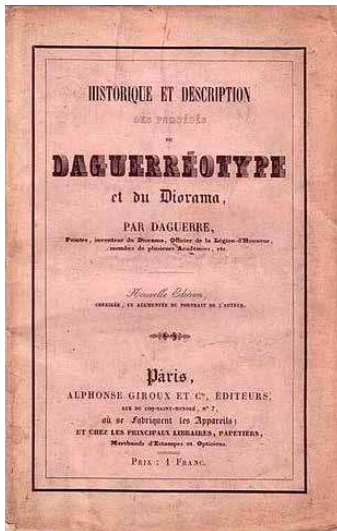
In general, folding cases were designed for carrying as a closed package or displaying while standing open on a flat surface. In contrast European style housings were often placed in frames for hanging on a wall. Frames vary in design and type of material, and were usually constructed from wood (varnished, decorated, covered with textile, gilded and/or painted) or thermoplastics. As usual, there are the exceptions, several examples exist of Anglo-American style 'packages' mounted in frames and daguerreotypes mounted in other types of housings.



Example of a hinged „Boston case“. Photographer unknown (c. 1840–1865), FoMu

4. Daguerre's Instruction Manual

The publication of Daguerre's **Historique et Description des procédés Daguerreotype et du Diorama** in 1839 was big news. Interest in the treatise was so overwhelming that it was reprinted several times in 1839, not always with Daguerre's permission. In combination with the required equipment, certified by Daguerre himself, they 'sold like hot cakes'.



Making a daguerreotype was a very labour intensive undertaking. Numerous steps were involved and very toxic products were used that affected not only the plates but also the photographer's health. The following is a summary of Daguerre's manual with a short description on the making of daguerreotypes.

The process is divided into five steps or procedures:

1. The polishing and cleaning of the plate.
2. The application of the light-sensitive layer.
3. The exposure of the plate to light in the camera obscura.
4. Making the latent image visible.
5. The removal of the light-sensitive layer so as to prevent further development.

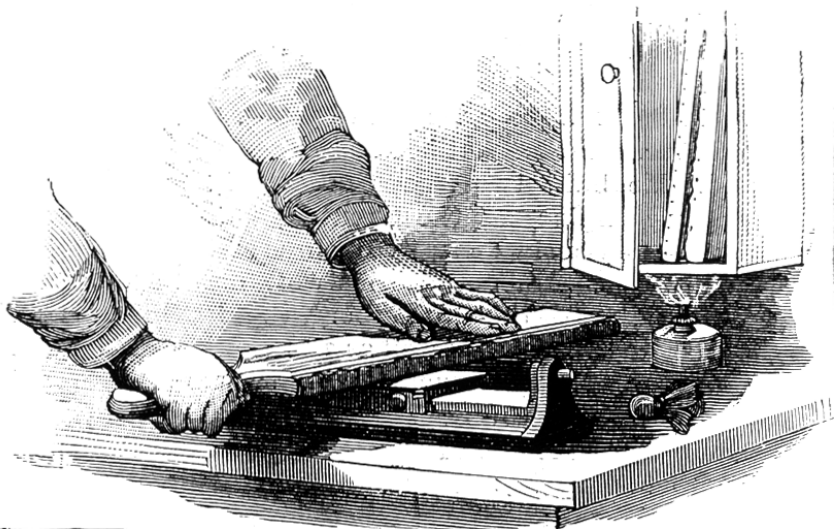
Title page of Daguerre's manual, left the first pirate copy (par Susse Frères, Cornell University Library LL/ 44744) that was available before the official version on the right (The Isenbug Collection @ AMC Toronto LL/9683)

4.1 Step 1: “One should begin by scrubbing the plate well.”

Requirements: olive oil, a piece of very finely combed cotton, extremely finely ground pumice in a muslin bag, nitric acid dissolved in water (1:16), iron wire rack, spirit burner.

Sift some pumice through the muslin onto the silver surface of the plate. Rub in a circular motion with a piece of cotton soaked in olive oil. Regularly refresh the piece of cloth. Remove the oil and grit with a clean cloth. Apply the acid with a wad of cotton wool. Make sure that the acid does not fall in drips but is spread equally so that the plate is covered with an even film. Polish again, this time lightly.

Lay the plate on the rack, in the flame of the burner with the silver uppermost. After about five minutes the surface will acquire a whitish film. Lay the plate on a cold surface and polish away just the whitish layer. Treat with acid another two times. Repeat this one more time before using the plate, followed by light polishing. Finally clean the plate well with a piece of cotton.



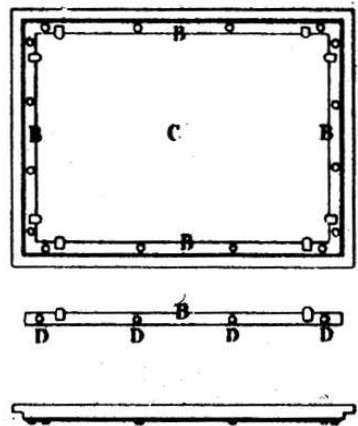
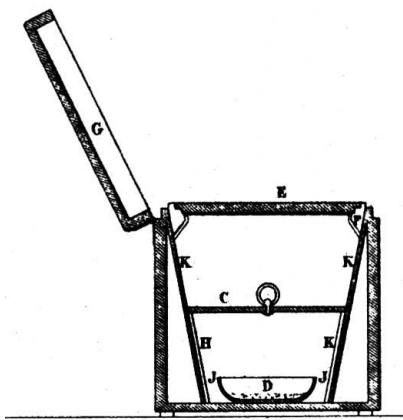
Polishing – 19th century engraving

4.2 Step 2: “The plate should be left in place until the silver surface is covered with a fine golden yellow veil.”

Requirements: box for vaporising iodine, plate holder, plate holder from the camera obscura, four metal strips, a punch and a box of pins, iodine.

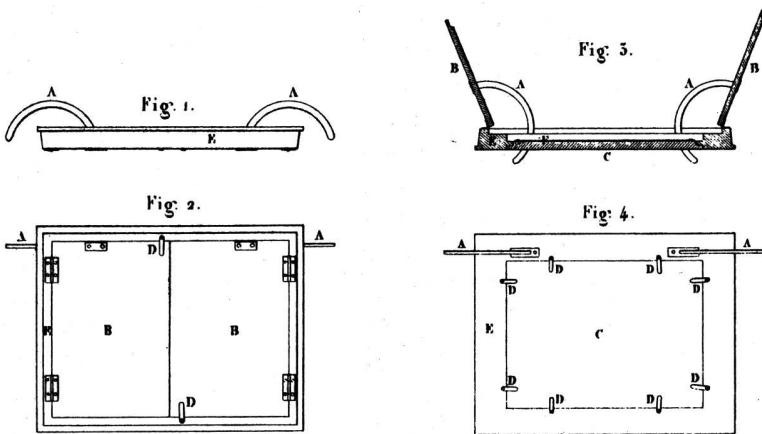
First clamp the plate in the holder by means of the metal strips. Use the punch to push the pins into the side. Spread the iodine in the basin at the bottom of the box. Cover it with muslin to equalise the vapour and at the same time, to prevent pieces of iodine hitting the plate if dislodged by air pressure when the cover is snapped shut. Place the plate holder with the plate facing downwards on the four corners at the opening and gently close the cover.

For the following procedure there is no fixed time span, as it depends on various factors. It normally takes between five and thirty minutes, during which the silver surface should become golden yellow. It is important to monitor this change closely: to prevent it from acquiring a purple colour, place the box in a space with just enough light. A room with the door ajar, for example, is suitable. Inspection of the plate should in that case be done quickly.



Box for vaporising iodine, 1839; Plate holder, 1839 - Illustration from Daguerre's manual

When the colour reaches the desired tone, the holder can be placed into the plate holder that fits into the camera obscura. Additional light can be provided by a candle, but avoid exposing the plate to direct light. Preferably make the exposure immediately, or within an hour.



4.3 Step 3: “All that remains now is to open the diaphragm of the camera obscura and to consult a watch to count the minutes.”

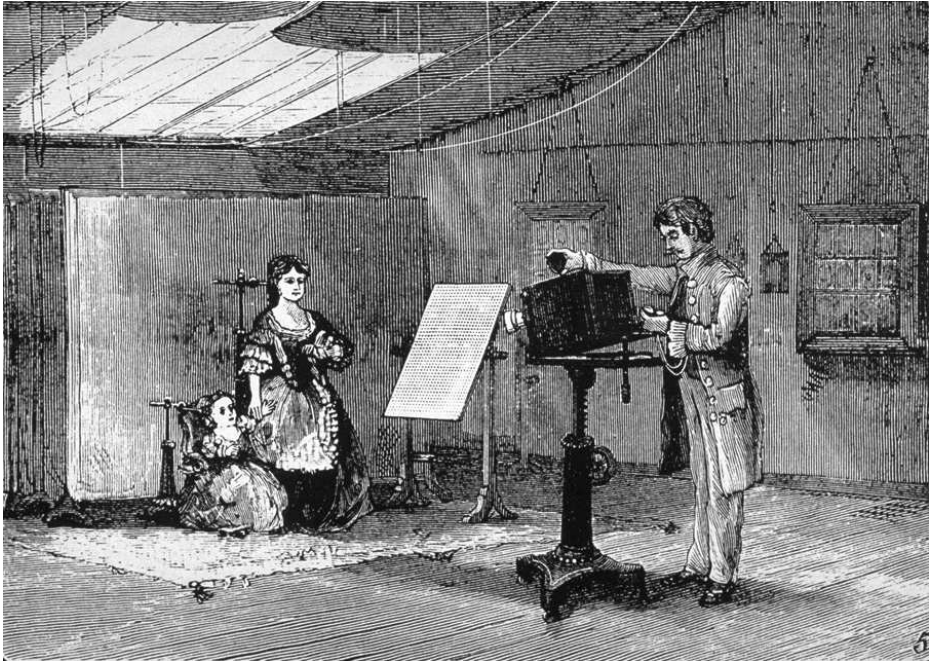
Requirements: camera obscura

Place the camera in front of a brightly illuminated object. Adjust the focus by moving the ground glass screen forwards or backwards. Place the plate holder into the camera, without dislodging it. Cover the lens and then open the inner door of the plate holder in the camera with the handle. Everything is now ready for the exposure. Remove the lens cap and count the minutes.

“In Paris the exposure time varies between three and thirty minutes, in more southern countries it is shorter. The season and time of day are of considerable influence.”

Daguerre’s Manual

Plate holder of the camera obscura, 1839 - Illustration from Daguerre’s manual



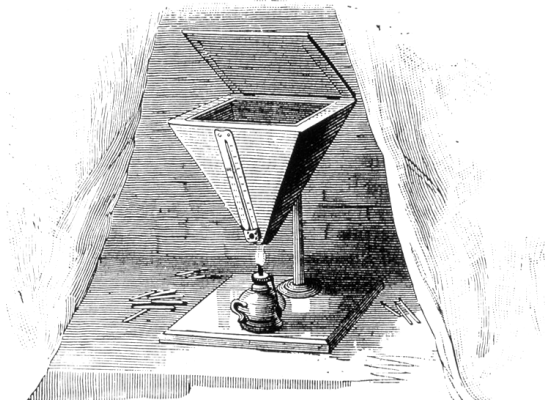
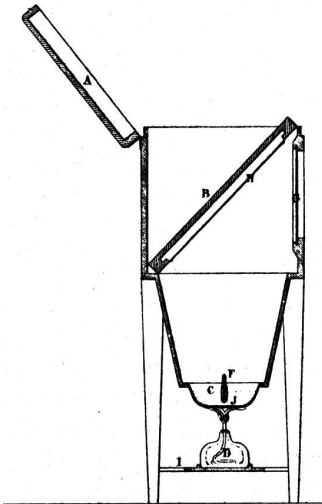
4.4 Step 4: “The impression of the image of nature exists on the plate, but it is not visible.”

Requirements: at least a kilogram of mercury, spirit burner, box for vaporising mercury, glass funnel with a long tube, box with grooves.

Use nothing more than a candle to illuminate the workplace during this operation. Pour the mercury with the aid of the funnel into the basin at the bottom of the box, until the bulb of the thermometer is submerged. Place the closed plate holder obliquely in the box so that the plate can be seen through the little window. Ignite the burner and heat the mercury to 60°C. Remove the burner immediately as the temperature must not rise above 75°C. In the meantime, follow the development of the image through the little window with a very frugal use of candlelight.

Making the exposure in the studio – 19th century engraving

Terminate the development when the temperature falls to 45°C. In case of overexposure one can stop at a higher temperature. Remove the plate from the holder and let it slide into the intended box. As long as the plate is stored in it, no changes will take place for at least a few months, provided that one does not look at the results too often and not during the day.



4.5 Step 5: “The mercury that draws the images is partly deposited and adheres to the silver.”

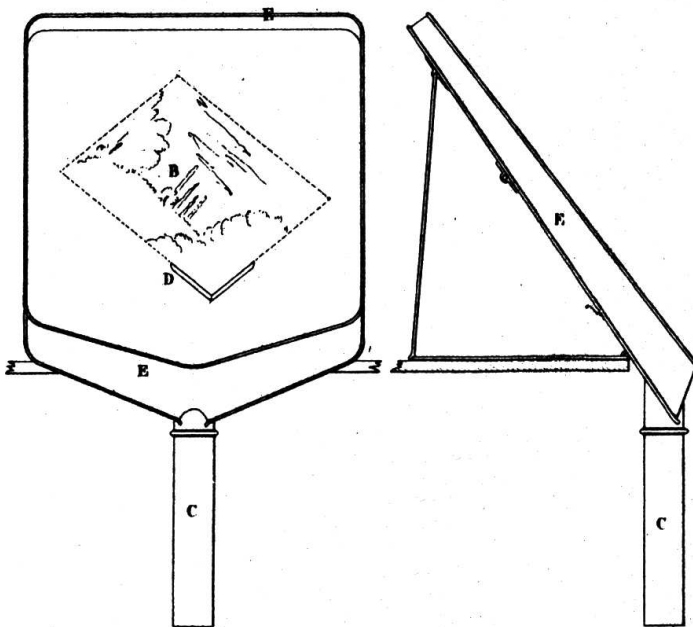
Requirements: sodium thiosulphate (hypo)¹⁰, a tilted tray, two tin-plated copper tubs, a jug of distilled water, a pair of tongs.

First fill one tank with hypo solution and one with tap water. Heat the water bath without allowing it to boil. Immerse the plate for a moment in the water and then transfer it to the hypo. Agitate it gently with the tongs. The yellow film on the light-sensitive layer will

Box for vaporising mercury, 1839 - Illustration from Daguerre's manual & 19th century engraving

disappear. Put the plate back into the water bath and at the same time bring the distilled water to a boil. Now lay the wet plate into the corners on the tilted tray and pour the boiling water over it. One litre is usually more than enough to rinse away the remaining salt and iodine.

The image obtained can be permanently damaged through the slightest touch. Varnishing results in the image being totally ruined. Plates should be glued down and placed behind glass in order to preserve them; "they are from now on inalterable, even in sunlight."



Tilted tray for rinsing the plate, 1839 - Illustration from Daguerre's manual

5. Conserving and Preserving Daguerreotypes

Daguerreotypes are usually between 175 and 150 years old. Undamaged examples are rare or in some cases nonexistent. Yet a daguerreotype plate/image lasts much longer than most contemporary photographs if it is well protected from certain influences. Air and water, corrosion, mould, insects and, above all, people, can damage and threaten the daguerreotype. Perhaps surprisingly, some components of the housing, such as the protective covering glass if it starts to decay, can also create an image threatening environment.

5.1 The original form

The conservation of photographic materials is a relative young and highly specialised field. The study and characterisation of daguerreotypes and their stability is still ongoing. All treatments should be carried out with respect for the integrity of the whole object, and not just focus on the plate or the image. One should also know that also photograph conservators may differ in personal preferences and opinions. The following descriptions of treatments and practices must be seen as general information and not as a personal expression of one conservator. Good storage practice and monitoring of the condition of the daguerreotype and its components, is often preferable to replacing deteriorated components.

Experienced photograph conservators will try to preserve and conserve damaged and altered daguerreotypes in their original form. Unfortunately this is not always achievable as it is sometimes difficult to determine the original condition and applied materials that were added later. Protective housings and daguerreotype plates are standardised and interchangeable so an existing housing may or may not be original to the plate it contains.

The photograph conservator tries to fix damaged parts while altering the outward appearance of the daguerreotype as little as possible. Missing parts can be replaced by new materials. New or modern materials - which make an intervention clearly visible – should be selected carefully and are only used when absolutely necessary. The photograph conservator should act prudently and introduce a minimum of change. All conservation work is recorded so that future generations do not face the same problem regarding identifying past interventions.

5.2 Loose plates

Sometimes historical daguerreotype plates are found without their protective housing. We know that a daguerreotype plate without a protective housing is very vulnerable to chemical deterioration and physical damage. In order to protect such loose daguerreotype plates, a 'preservation housing' is individually made. This new housing consist of un-buffered acid- free materials and, if necessary, UV-filtering covering glass. The new housing is sealed with a new binding to keep out harmful gasses and dust.



Bare daguerreotype plate after cleaning, mounted in a conservation housing, RKD The Hague, IB-1022810.

5.3 Weaknesses

Photographs, including daguerreotypes, start out primarily objects that are a part of people's lives. As photographs became more valuable, more attention was given to the preservation and conservation of them.

Early daguerreotypists were aware of the mechanical and chemical sensitivity of the daguerreotype plates and placed them in a protective housing. Over time, the paper bindings deteriorated and covering glasses corroded, resulting in deterioration and damage of the image and housing. Frames and housings were sometimes removed or reused, as a consequence of historical use and varying ethics.

Nowadays collectors, museum staff, conservators, but also the broader public, are confronted with the changed approach and increased value of photographic materials and collections. One task of this booklet is to inform and raise awareness about the fragility of the daguerreotype plate and object. The nature of deterioration can be divided into mechanical, biological and chemical damage.

5.3.1 Biological damage

Biological damage is caused by organisms. Insects and fungus can harm the daguerreotype by attacking the housing materials, or can cause stains on the daguerreotype plate. Sometimes dead insects are seen within the daguerreotype housing.

5.3.2 Chemical damage

Chemical influences form a major threat. They are difficult to perceive, are active almost everywhere and hard to control. 'Ordinary' air contains substances and gases that react with all sorts of material, including paper, wood and metal. Oxidation, discolouration and dehydration are all possible results. The materials used for the housing can also include harmful components, such as acidic or oxidising compounds. Glass corrosion products can form droplets in a humid environment and can fall onto the daguerreotype surface. They will affect the image layer and even can penetrate through the silver layer to the copper base, resulting in green-bluish eruptions of copper salts.

5.3.3 Mechanical damage

Mechanical damage is caused by physical force. A daguerreotype might fall, so that the

glass and wooden parts break and the plate becomes deformed, but it can also be actively damaged. Wear and tear are, of course, inevitable. Many plates show scratches – most probably because owners wanted to wipe them clean – and fingerprints are frequently seen. Yet mechanical damage is not always the result of human intervention. The sharp edges of a mat can scratch away the image and silver layer unnoticed.



5.4 Cleaning

Historical treatments, 'cyanide' - (until the 1950's) and 'thiourea' cleaning (from the mid 1950's onwards and often referred to as 'silver dip'), will seriously damage a daguerreotype because they will dissolve a part of the image and microscopically etch the polished surface. Thiourea cleaners also leave chemical deposits that can react with the image to form a milky film and/or staining.

Mechanical damage to a housing, resulting in a chemical attack of the daguerreotype plate through infiltration of air and gas-pollutants. Portrait of an unknown lady. Photographer unknown, KBDK

From the 1980's onwards, new cleaning techniques (laser-, plasma-, sputter-, and several electrochemical cleaning methods) were researched and developed, but all these techniques are considered to be imperfect and are still controversial. The main reason for this is the difficulty in understanding the complex structure and composition of daguerreotypes and the effect of the treatment. Research is continuing, but on a rather basic level and more research should be stimulated.

On rare occasions, for example when the daguerreotype image may be hidden under a black tarnish layer, some conservators are using a controlled electrochemical cleaning technique to remove tarnish from the surface of the daguerreotype plate. This should only be done after a careful preliminary analysis. The technique involves laying the plate in a solution, called the electrolyte, through which a regulated, direct electric current is then passed. Electrochemical cleaning breaks down some silver corrosion products. However, electrochemical cleaning is not possible and can even be harmful if the plate has been hand coloured, not been gold toned, the silver layer is delaminating or has lifted.

It should be possible to take a photograph of the hidden image using infra-red photography without the need to chemically intervene with the daguerreotype¹¹.



Results of an earlier thiourea treatment, Photographer unknown - RKD IB-1022810

The daguerreotype plate of Image 30, after a more recent electrochemical treatment. Photographer unknown, RKD IB-1022810

5.5 Compromise

Since daguerreotypes usually consist of many different materials, a compromise has to be made when preserving them. What is best for the plate is less desirable for the wooden or paper components of the housing. One of the least harmful solutions is to preserve the plate at a constant temperature of 14°- 18° C and a relative atmospheric humidity (RH) between 45 and 50 %.

When smaller institutes and private collectors have no access to a controlled environment, the use of suitable packing materials – for example a thin, acid-free board, four-flap folder combined with an acid-free board box – will create a safer and more stable environment for the contents. It is also important that the daguerreotype always be stored flat and with the image side facing down. This will prevent residues from glass corrosion dropping down on the daguerreotype plate and causing irreparable chemical damage to the daguerreotype plate and image.

Footnotes

- 1 Wood, Derek, *The Arrival of the Daguerreotype in New York*.
- 2 The first man to make a photograph in America, the English dentist D.W. Saeger, is credited with publishing the first tables of recommended exposure times back in 1839. Beaumont Newhall has characterised Gouraud as 'Daguerre's Agent in America'
- 3 Devaux, Guy, *De la photographie à la chrysothérapie: le sel de Fordos et Gélis*. In: *Revue d'histoire de la pharmacie*, 87e année, N. 323, 1999, pp. 347-354. En 1840, le physicien français Hippolyte Fizeau (1819-1896) proposa, pour fixer les daguerréotypes, un réactif à base de chlorure d'or et de thiosulfate de sodium. En 1843, deux pharmaciens français, Mathurin Joseph Fordos (1816-1878) et Amédée Gélis (1815-1882) en isolèrent le principe actif sous forme cristallisée, lui attribuant après analyse la formule d'un aurothiosulfate de sodium. Ils préconisèrent l'utilisation d'une solution aqueuse de ce produit pour la fixation des épreuves photographiques.
- 4 March 1841, Dr. Berres about the brothers Natterer; May 1841, F.J.Claudet.
- 5 Voight, J., *The portrait of the early years were kind of simple, no specific furniture being used – beside a simple chair and the neck brace*. The "props" of photography studios was typical for later. There are btw. typical differences between American and European studios. The Americans almost never used „columns" and „curtains".
- 6 The spread in the US was on a much larger scale and speed, resulting in substantial differences in the amount of daguerreotypes that were produced. An advertisement in a New York's newspaper in 1853 named a number of a few million daguerreotypes made during that year. Our prospecting of available European style daguerreotypes resulted in a relative low number (some tens of thousands) of available daguerreotypes.
- 7 Berry was commissioned by Daguerre to sell licenses in Great Britain.
- 8 Weimar, Wilhelm, *Die Daguerreotypie in Hamburg 1839-1860*, Ein beitrage zur geschichte der photographie, Hamburg, 1915, Otto Meissners Verlag.
- 9 Voigländer plates were round, and were available pre-fabricated in large numbers and could be purchased at several places, where Daguerreotyp-equipment was traded.
- 10 Daguerre, Louis-Jacques Mandé. *Historique et description des procédés du daguerréotype et du diorama*, rédigés par Daguerre, ornés du portrait de l'auteur; et augmentés de notes et d'observations par MM. Lerebours et Susse frères, Paris, 1839, page 18: "... L'image de la chambre noire ainsi reproduite, on doit empêcher que la lumière du jour ne l'altère. M. Daguerre arrive à ce résultat, en agitant la plaque dans de l'hyposulfite de soude et en la lavant ensuite avec de l'eau distillée chaude."
- 11 'Hyperspectral Imaging of Daguerreotypes' by Douglas Goltz, and Gregory Hill, Restaurator. *International Journal for the Preservation of Library and Archival Material*. Volume 33, Issue 1, Pages 1–16, ISSN (Online) 1865-8431, ISSN (Print) 0034-5806, DOI: 0.1515/res-2012-0001, March 2012

6. Short Texts on Daguerreotypes

IPR: Andreas von Ettingshausen, Cross section of a clematis stem, March 4th 1840

This remarkable image, held by the Albertina in Vienna, marks the beginning of Austrian photographic history. On March 4th, 1840, the Physicians Society gathered for an experi-



ment before a larger audience. Four of its members were involved: Physician Joseph Berres was responsible for preparing the specimen, optician Simon Plössl put in the specially adapted microscope, physicist Carl Schuh provided with his improved gaslight for - this day and age unknown - bundled light intensity, and finally university professor of chemistry, Andreas von Ettingshausen, who had acquired knowledge on how to make daguerreotypes in Paris. Together they created this first microscopic image. This daguerreotype not only represents pioneer work in the field of scientific imaging. Its fascinating composition and abstract qualities make it stand out from others of its time. Taking this fact into consideration, it can also be seen as a prediction of the artistic possibilities of this new medium. From: Gröning/Faber: Inkunabeln einer neuen Zeit, Vienna 2006

ARCP: Barricades de 1848, daguerreotype from the Musée Carnavalet, Paris

A very rare document illustrating an episode of the 1848 Revolution barricades in Paris, this daguerreotype from the Musée Carnavalet belongs to a series of three plates, the Mu-



sée d'Orsay owning the two other plates. The ensemble represents one of the first known examples of photojournalism reportage: only five days after the shooting, the magazine *L'Illustration* published, in its first July edition, two engravings executed from the two daguerreotypes "before" and "after the attack". This vantage point, from the top of a rue Saint-Maur-Popincourt building in the present 11th district, doesn't exist anymore since this eastern Parisian neighbourhood has since been greatly altered by the Hausmannien works of the second half of the 19th century. Thibault, the images author as announced by the newspaper, is obviously a talented amateur for he managed to fix, despite the lengthy pausing times, several moments of the end of the barricades destroyed by governmental troops in June 1848.

Barricades before the attack, rue Saint-Maur-Popincourt, on the morning of the 25th of June 1848, Thibault, 1/2 plate, plate size 12,4 x 16,3 cm, glass size 19 x 23 cm, frame size 21,5 x 25,5 cm, Musée Carnavalet

NB : The Royal Palace, seen from Akershus castle

We are looking at a very rare motif among daguerreotypes, the oldest known Norwegian photographic cityscape. From a standpoint at Akershus castle and fortress in Christiania (now Oslo) we see the Royal Palace over the rooftops in Piperviken. However, a close in-



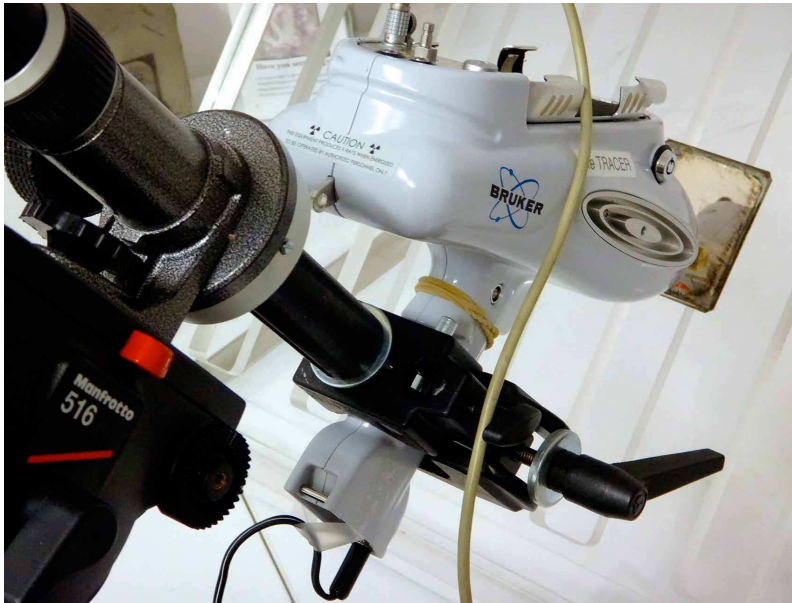
spection of the details in the image reveals that our vision is inverted. The text "Testman fecit" stands vertically to the left on the mat, indicating that it was intended for a portrait format.

The photographer Peter Otto Testman (1806 – 1890) was a Norwegian who moved to Denmark, but studied in Christiania. When we turn this framed daguerreotype we discover that the plate is circular, with straight sides at top and bottom. The diameter is 9,7 cm, fitting in a "ganzmetall" Voigtländer camera. We also find the handwritten text "Kongeslottet i Christiania", probably added later. Someone thus establishes the Royal Palace as main motif, pushing the rooftops to the background of our attention.

Peter Otto Testman, 1841-45 / National Library of Norway, blds_a_FAU120, 103 x 127 mm, partly circular plate 97 mm in diameter

SMP: The Role of Modern Conservation Science in Research and Daguerreotypes' Conservation

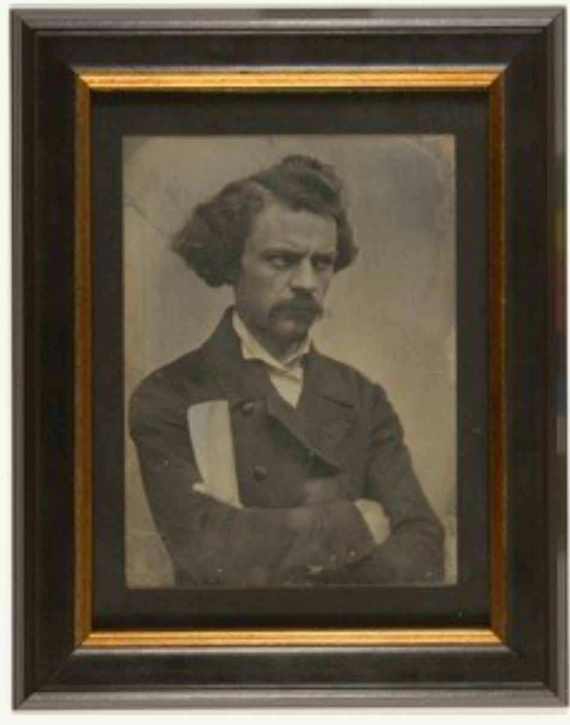
Due to their rarity and vulnerability, in the 1970's and 1980's, daguerreotypes were the very first photographic objects to undergo intensive scientific study through the application of modern scientific investigative methodologies. The conservation of cased or framed daguer-



reotypes involves the treatment of a range of different materials, therefore, prior to making an important decision concerning the best conservation strategy to apply, it is sometimes necessary for a photograph conservator to go beyond simple visual and microscopic examinations and invite the collaboration of a material scientist. Modern conservation science can help to solve problems related to material and process identification (e.g. the dyes or pigments used in tinted daguerreotypes) or to better understand the nature of specific forms of deterioration, such as those caused by the decomposition of the protective glass in 19th century daguerreotypes. One practical example of this is the application of XRF (X-ray fluorescence spectrometry) analysis, which provides information on the chemical compo-

XRF (X-ray fluorescent spectrometry) quantitative analysis used for non-contact and non-destructive measurement of thickness layer of silver of the daguerreotype

sition of the daguerreotype image, making it possible to identify the original treatments used or specific variations in the preparation of the plate. Through XRF analysis, measurements of the thickness of the silver layer can also be obtained, this result can be correlated with specific hallmarks found on some plates. Sandra Maria Petrillo, Director of SMP Photoconservation



FoMu: (Self)-portrait by Joseph-Ernest Buschmann from the FoMu Collection

This daguerreotype portrait from the FoMu collection is attributed to the Antwerp printer, publisher and writer Joseph-Ernest Buschmann (1814-1853), one of the key figures in the pioneer period of Belgian photography. Buschmann developed a strong interest in the young invention of photography and started looking for a technique to distribute photographs on a larger scale.

From 1847 onwards Buschmann experimented with the daguerreotype and salt print tech-

Joseph-Ernest Buschmann, (Self)-portrait, ca. 1848, daguerreotype, fullplate, 21,5 x 16,5 cm / Collection FoMu, FMA-B-143-005

nique, to the extent that he became possessed by his passion for photography. Manic symptoms such as insomnia, bulimia and obsessive research on photography kept him captivated, to the point that he was committed to a mental institution in 1850. In this (self)-portrait Buschmann poses with great self-assurance, dressed in a dark jacket, his arms crossed and with a roll of paper in hand as a symbol of his intellectual status. His fierce gaze and deep eye sockets seem almost a predestination of the madness that would lead to his death a few years later.



FMP: Town council member Johan Felen with family.

An elegant gentleman, a lady, and two young girls pose side by side in front of the camera. The couple have their arms around the girls' waists. One of the girls rests her arm on man's shoulder. The silent ensemble waits. Light passes through the camera's lens to be captured as an image. A hint of a smile can be distinguished on their serious faces. The portrayed persons are Kristiinankaupunki's town council member Johan Felen (1812–1879) and his spouse, Anna Helena b. Lacke (1805–1866) with their daughters. This might be their first time being photographed. Instinctively, I search for likenesses between their faces. They are astonishin-

Daguerreotype, 1850s., Photographer unknown. Alma and Unio Hiitonen collection The Finnish Museum of Photography D2003:67/1

gly clear and detailed for me to peruse. The gentleman's waistcoat buttons and the lady's knuckles are easily distinguishable in the fine photograph. The picture has possibly been taken in Kristiinankaupunki or Raahе, Finland. The photographer is unknown. Maria Faarinen, curator



MCS: A daguerreotype mystery

This plate is an enigma. If photographed using the same techniques as used for other daguerreotypes the image appears as a negative. This could be explained if it were a daguerreotype of a daguerreotype. However, if viewed at an angle some areas appear positive and others negative. The surface appears to have been unevenly altered and these alterations correspond to the differences in the image. Fizeau carried out many experiments with the daguerreotype process, inventing gold toning, independently inventing sensitisation with a second halide and a method for etching daguerreotypes for printing. Examination using a high powered microscope shows that the surface is not capable of being printed as an etching. What produced this strange effect? Is it a gold toning experiment, an etching test or a form of solarisa-

Attributed to Armand Hippolyte Louis Fizeau (1819 – 1896), unidentified buildings, 110 x 81 mm

tion perhaps? An etching test seems most likely as the whitish areas in the image shown have a warm colour when viewed in reflected light, as though the silver layer had been thinned to the point where the copper is almost showing through. Nicholas Burnett, Director MCS



UiB: Bride from Birkeland

Pictures of people dressed in national costumes were popular in Norway from the eighteenth century. It was part of the romanticism in the arts and the awakening of a national spirit that would lead to the independence of Norway in 1905. This interest in traditional dress continued into the photographic era. Bergen's first photographer, Marcus Selmer, made national costume series first as daguerreotypes, then later as carte-de-visites. Of the original daguerreotypes, 10 are in the collection of Bergen University Museum. They are half-plate size, beautifully hand-coloured and well preserved. We show a woman in a costume with the typical western Norwegian bridal crown, signed in the daguerreotype plate by M. Selmer 1855. Among known carte-de-visites series is also one with a woman wearing the identical costume

Marcus Selmer, Woman in bridal costume, daguerreotype, Bergen, 1855

in front of a photographic landscape-background. The daguerreotypes have been re-photographed for the mass market whereas the daguerreotype itself has been used for exhibitions and ended up in the local museum. Information from Erlandsen, Roger: Nordisk Fotohistorisk Symposium, Oslo 1980, Solveig Greve, University of Bergen Library

UPV: A relevant example: Portrait of woman with a fan (1850-1860)

This daguerreotype belongs to the Díaz Prósper Collection. It was made by an unknown photographer and probably taken in Valencia. It is a female portrait, in a stage which imitates a house interior, although it was doubtless taken in a photographic studio. The bour-



geoisie from the period preferred intimate spaces to show off their estate. This is contrary to the use of exterior places which symbolise the place for work and leisure. The woman's attitude shows her social class, the commercial middle-class developed in Valencia during

that time. The figure poses seated, elegantly dressed and next to a table with a vase with flowers (iconography taken from the miniature portrait tradition). The posture exalts both hands: the left one rests on the table showing us her bracelet and a ring, while the other one, equally adorned, plays with a fan. This is the most characteristic element, typical from Spanish culture and hard to find in the foreign albums. The clothes themselves also reinforce the social position of the sitter. The fan, jewels and flowers were coloured and gilded; finishing techniques which call our attention on her possessions; the main purpose in this type of portrait.



MLK: Who is the portrayed person?

The chemist and photo historian Dr. Erich Stenger (1878-1957) collected photographs of the early techniques as early as 1906. One of his daguerreotypes is this portrait of a man

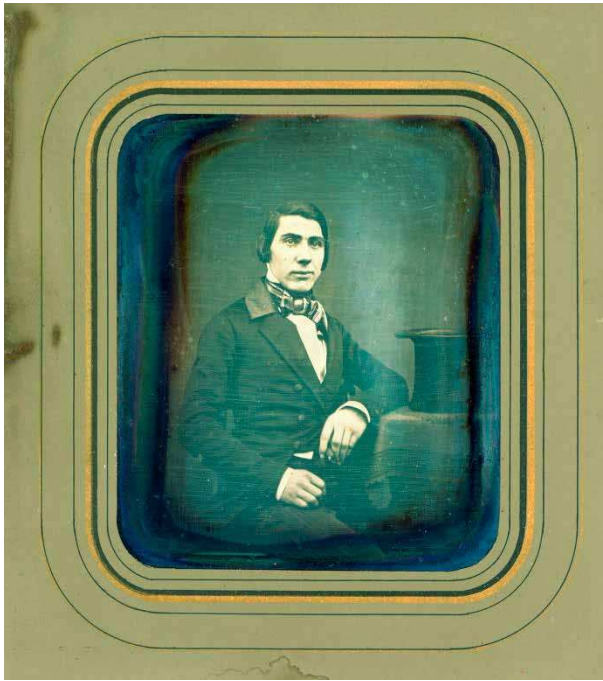
with his machine. It is credited to the Swiss photographer Charles H. Bruder, who mainly worked in Neuchâtel and for a short time in Bern in 1853. This image with the size of 8,8 x 6,7 cm is probably a daguerreotyped reproduction of a whole plate, which is located in a Munich private collection. The large original is dated from 7th August 1853; the smaller copy was created - according to the inscription on the back – two years later. Due to the imprint in the upper right corner of the museum's plate (a rosette, Agnus Dei, two crescents, JP 30), there is no question about the authenticity of a contemporary plate, but the reproduction could be daguerreotyped by any photographer. It may be possible that some more plates were produced for the portrayed man.

Who is the portrayed person?

Portraits - alone, with spouse or with family - are not exactly rare in the early days of photography. But this man wanted to be immortalised with his machine. We do not know for sure, but maybe he is the engineer and manufacturer of the cast-iron monster, J. J. Gutknecht, whose name that can be read on the engine. Then again he might be the new owner of it. In any case the middle-aged man presents himself in a fine suit, an impeccable shirt, and with great pride with the machine at his side that symbolizes the entry of progress into his life. The machine, however, the protagonist of this image, is still quarrelling with a new economic and cultural power: the industry. It is resting on four table-legs designed as Doric columns. These historic elements were used to enhance the value of industrial machines, which were perceived as aesthetically inferior. That way the machine still bears witness of the ambivalent relationship to industrial production, to progress at all in the midst of the nineteenth century.

TSD: Portrait of Amandus Schubert, Berlin 1851, 1/6 Plate

Daguerreotypes are images of two tempi. On the one hand, photography reduced the face time between model and portraitist dramatically, as, unlike with painted or drawn pictures, hour-long sessions were no longer necessary. On the other hand, photography seemingly stopped the passage of time and extended the moment when the image was taken into the indefinite. With the invention of photography an unprecedented acceleration of perception set in which was even increased by the innovations in media technology that followed in the second half of the 19th century. In the portrait of Amandus Schubert, the tension between volatility and stiffness, solidification, can be easily observed. With an inquisitive facial expression the young man looks into the void. In a sitting position, with his left arm propped on



a small table, he is trying to find a stable pose. In 1851, at the age of 20, he had had himself photographed in Berlin. As the inscription shows, the family remembered this event, even long after it. This daguerreotype, like most of these originals at the Technische Sammlungen Dresden, is an acquisition from the collection of the photographer Alfred Jäschke, Görlitz.

KBDK: For the first time

"To retain a trace, an effigy, or an imprint of light and shadow, seems to the person unaware of the light-effects discovered by science, unbelievable and more wonderful than anything in a fable". Thus wrote Danish physicist Hans Christian Ørsted (1777-1851) in February 1839 shortly after having been presented with the daguerreotype technique. His acquaintance, the author Hans Christian Andersen (1805-1875), soon studied the technique,

*Unknown photographer, detail 7.2 x 6.2 cm, with frame 18 x 16 cm. Inventory number TSD: D 71. Verso inscribed by hand: "Amandus Schubert aus Lauban Schl. aufgenommen in Berlin 1851 * 22. III. 1831, + 21. V. 1900" (Amandus Schubert from Lauban, Silesia, Image taken in Berlin 1851 * 22 March 1831, * 21 May 1900).*

and in contrast to the stern Ørsted, gushed himself into poetic and mystical reveries. He dreamt of being able to retain not only light and shadow, but the "reflection of the heart". The contemporary sculptor, Bertel Thorvaldsen (1770-1844), on the other hand had a profound fear of being photographed and made a sign with his fingers to protect himself from "the evil eye" when being photographed. But what did the ordinary, or should we say 'bourgeois', population think? Looking into the daguerreotypic eyes of Julius Carlsen and his siblings – staring so vividly at me from the daguerreotype taken by an unknown photographer at about 1854, I am not only touched by the meticulous rendering of the children's skin, lips, hair etc. The daguerreotype also leaves me pondering what children with eyes and fingers unfamiliar to the photographs on computer screens and touch phones, thought at that moment of exposure.

Mette Kia Krabbe Meyer, Research Librarian at The Royal Library - National Collections Department



Group Portrait of Julius, Adolf and Nicole Carlsen, approx. 1854, Photographer unknown, Inv. Nr. 1999-68/3.

NTM: The oldest extant daguerreotype of Czech origin

This daguerreotype of a cross section of an unknown plant stem was produced by using a micro-scope in 1840 in Litomyšl, Bohemia. The author of this rare daguerreotype is Dr. Florus Ignác Stašek (1782 - 1862), the rector of the Piarist College in Litomyšl. The picture is on a circular copper plate, slightly convex, diameter 162 mm, 0,5 mm thick.

Dr. Stašek was a very good physicist and was also interested in the daguerreotype. The daguerreotype camera with which he worked came from the Viennese Professor of Physics Andreas von Ettingshausen and was made by the Viennese optician Michael Eckling. Professor Ettingshausen also taught Dr. Stašek the daguerreotype process. The camera is now in the collection of National Technical Museum.



Micro-daguerreotype, Florus Ignác Stašek, 1840, NTM.

NFM: What's in a housing?

A collection of daguerreotypes owned by the Library of the University of Leiden (NL) was brought into the conservation studio of the NFM for a preservation treatment. In the 1960's this collection of daguerreotypes was cleaned using the thiourea method. During or after this treatment, daguerreotype number PKL #G4131 was attributed to T. Hutchinson and dated 1843. Another daguerreotype in the series, number PKL #G4170, was described as from an unknown photographer, but showed all characteristics of a Hutchinson daguerreotype. We believed that the back of the two daguerreotypes were switched. This conclusion was made based on the characteristics of the housings (mat), the image quality and known information about daguerreotypist, T. Hutchinson.

First, the style of the housing that was dated 1843, was unusual. Early European style housings from the first half of the 1840's, show thin paper mats or painted covering glasses, mostly in light tones. The thick multi-layer mat as showed on Image 1, with the dark colour

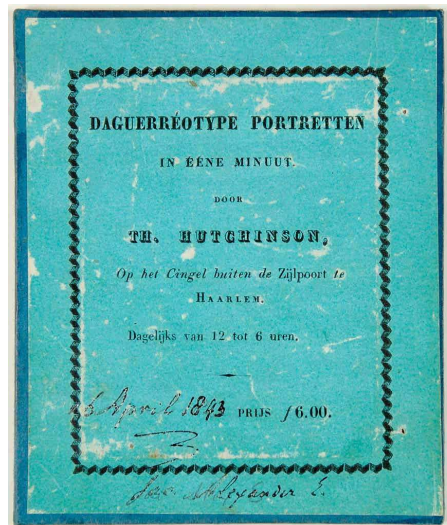


painted covering glass, came in use from the second half of the 1840's on.

Secondly, we knew that T. Hutchinson was a travelling daguerreotypist that was visiting Harlem (Netherlands) in 1842-1843. He finished his daguerreotypes with a very specific and personalised backing paper combined with a simple paper mat (see images DFE # 11).

Image PKL # G4131, with inscription: T. Hutchinson, Haarlem 1843.

Lastly, the image of the woman from Image 1 is produced in a kind of studio setting, different of what we knew from Hutchinson and also unusual for this period in the Netherlands. During the new treatment in our conservation studio, the binding tape of housing #G4131 was removed and revealed a board containing parts of the typical light-blue Hutchinson label. The final proof of our Hutchinson theory. After a consultation with the owner, we decided to place back the Hutchinson back board and paper on daguerreotype #G4170. Herman Maes, senior conservator NFM.



Recto and verso of DFE #11, with label of daguerreotypist T. Hutchinson. Image PKL # G4170.

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